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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,803	04/20/2001	Adrian Lungu	IM1303 US NA	2560

23906 7590 07/26/2005

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EXAMINER	
WALKE, AMANDA C	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/839,803	LUNGU, ADRIAN	
	Examiner	Art Unit	
	Amanda C. Walke	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-19 and 31-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-19, and 31-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-19, 31, 32, and 33 arte rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al (5,798,202) in view of Grinevich et al (6,309,797).

Cushner et al disclose a flexographic printing plate prepared from a

a) a flexible support; and

(b) a laser engravable, reinforced elastomeric layer wherein said layer has been singly reinforced mechanically or thermochemically or multiply reinforced mechanically and photochemically, mechanically and thermochemically, or photochemically and thermochemically, or mechanically, photochemically and thermochemically provided that thermochemical reinforcement is accomplished using a crosslinker other than sulfur, a sulfur containing moiety, or peroxide. These elastomeric materials can be used to particular advantage in the formation of seamless, continuous printing elements. The flat sheet elements can be reprocessed by wrapping the element around a cylindrical form, usually a printing sleeve or the printing cylinder itself, and fusing the edges together to form a seamless, continuous element. Such fusion is not possible with rubber plates because the vulcanized rubber is irreversibly crosslinked and, thus, cannot dissolve or melt unless the network structure is destroyed. These continuous printing elements have applications in the flexographic printing of continuous

designs such as in wallpaper, decoration and gift wrapping paper. Furthermore, such continuous printing elements are well-suited for mounting on conventional laser engraving equipment. The sleeve or cylinder on which the printing element is wrapped when the edges are fused, can be mounted directly into the laser engraving apparatus where it functions as the rotating drum during the engraving process. Unless otherwise indicated, the term "single layer, laser engravable flexographic element" encompasses plates or elements in any form suitable for flexographic printing, including, but not limited to, flat sheets and seamless continuous forms. Another advantage in working with the process and single layer, laser engravable flexographic printing elements of the invention is that the noxious odors associated with conventional rubber plates are minimized during laser engraving. An advantage of the single layer elements of the invention is that they possess dimensional stability due to the presence of a flexible support. The process and elements of the invention are made from elastomeric materials which can be reinforced using at least one type of reinforcement selected from the group consisting of mechanical, photochemical, and thermochemical reinforcement, or a combination thereof, provided that thermochemical reinforcement is accomplished using a crosslinker other than sulfur, a sulfur-containing moiety or peroxide, to produce an elastomeric layer suitable for laser engraving as is described below. Such reinforcement is a very important factor in utilizing the process and single layer, laser engravable flexographic printing elements of the invention. Photochemical reinforcement is accomplished by incorporating photohardenable materials into the elastomeric layer and exposing the layer to actinic radiation. Photohardenable materials are well known and include photocrosslinkable or photopolymerizable systems, or combinations thereof. Photocrosslinking generally occurs by crosslinking a preformed polymer to form a substantially insoluble

crosslinked polymeric network. This can occur either through dimerization of pendant reactive groups attached directly to the polymer chain, or reaction of the polymer with a separate polyfunctional photoactive crosslinking agent. Photopolymerization generally occurs when relatively low molecular weight monomers or oligomers undergo photoinitiated cationic or free radical polymerization to form substantially insoluble polymers. In some systems, both photocrosslinking and photopolymerization can occur. Photohardenable materials which can be incorporated into an elastomer generally comprise a photoinitiator or photoinitiator system (hereinafter referred to as "photoinitiator system") and one of (i) a low molecular weight monomer or oligomer capable of undergoing polymerization, (ii) reactive groups pendant to the elastomer which are capable of reacting with each other or (iii) reactive groups pendant to the elastomer and a crosslinking agent capable of reacting with the reactive groups. The photoinitiator system is one which, upon irradiation with actinic radiation forms a species which will initiate either free radical or cationic crosslinking or polymerization reactions. By actinic radiation, it is meant high energy radiation including but not limited to UV, visible, electron beam, and X-ray. Most photoinitiator systems for free radical reactions in current use are based upon one of two mechanisms: photofragmentation and photoinduced hydrogen abstraction. Suitable photoinitiator systems of the first type include peroxides, such as benzoyl peroxide; azo compounds, such as 2,2'-azobis(butyronitrile); benzoin derivatives, such as benzoin and benzoin methyl ether; derivatives of acetophenone, such as 2,2-dimethoxy-2-phenylacetophenone; ketoxime esters of benzoin; triazines; and biimidazoles. Suitable photoinitiator systems of the second type include anthraquinone and a hydrogen donor; benzophenone and tertiary amines; Michler's ketone alone and with benzophenone; thioxanthones; and 3-ketocoumarins.

Photoinitiator systems suitable for cationic crosslinking or polymerization reactions are those which, upon irradiation, produce a Lewis acid or a protonic Bronsted acid which is capable of initiating polymerization of ethylene oxide or epoxy derivatives. Most photoinitiator systems of this type are onium salts, such as diazonium, iodonium and sulfonium salts. Sensitizing agents can also be included with the photoinitiator systems discussed above. In general, sensitizing agents are those materials which absorb radiation at a wavelength different than that of the reaction-initiating component, and are capable of transferring the absorbed energy to that component. Thus, the wavelength of the activating radiation can be adjusted. As mentioned above, the elastomer can have pendant groups which are capable of undergoing free-radical induced or cationic crosslinking reactions. Pendant groups which are capable of undergoing free-radical induced crosslinking reactions are generally those which contain sites of ethylenic unsaturation, such as mono- and polyunsaturated alkyl groups; acrylic and methacrylic acids and esters. In some cases, the pendant crosslinking group can itself be photosensitive, as is the case with pendant cinnamoyl or N-alkyl stilbazolium groups. Pendant groups which are capable of undergoing cationic crosslinking reactions include substituted and unsubstituted epoxide and aziridine groups. An additional polyfunctional crosslinking agent can be added to react with the pendant reactive groups. Monomers undergoing free-radical polymerization are typically ethylenically unsaturated compounds. Examples of monofunctional compounds include acrylate and methacrylate esters of alcohols and their low molecular weight oligomers. Examples of suitable monomers and oligomers with two or more sites of unsaturation capable of undergoing free-radical induced addition reactions include the polyacrylate and polymethacrylate esters of polyols such as triethyleneglycol, trimethylolpropane, 1,6-hexanediol, and pentaerythritol, and

their low molecular weight oligomers. Esters of ethoxylated trimethyolol propane, in which each hydroxyl group has been reacted with several molecules of ethylene oxide, as well as monomers derived from bisphenol A diglycidyl ether and monomers derived from urethanes have also been used. Monomers which undergo cationic polymerization include mono- and polyfunctional epoxides and aziridines. In some cases, where there are residual reactive sites in the binder, e.g., residual unsaturation or epoxide groups, the crosslinking agent can also react with the binder.

While the reference teaches that sensitizers and other color formers may be added, the reference fails to specifically mention a leuco dye.

Grinevich et al disclose a colorable polymerizable compositions and a method for forming selectively colored polymeric bodies using such compositions are disclosed. In accordance with the invention, a selectively colorable polymerizable composition comprising both a leucobase color former and a leuconitrile color former is irradiated with light of a particular wavelength and specific intensity for a specified duration. Exposure to actinic radiation cures the composition and activates the color formers. The irradiation dosage can be varied to selectively color the polymeric body whereby the resultant color of any particular area depends on the exposure dose received at that location. By varying the dose, a polymeric body can be prepared having distinctly colored elements at specific locations.

Given the teachings of Grinevich et al, it would have been obvious to one of ordinary skill in the art to prepare the material of Cushner et al choosing to employ the conventional color formers of Grinevich et al with reasonable expectation of achieving a material having uniform thickness.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cushner et al (5,804,353) and Decker et al (Journal article) are cited as teachings similar materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amanda C Walke
Examiner
Art Unit 1752

ACW
July 24, 2005